

KHNPDCDRAIsPEm Resource

From: Ward, William
Sent: Monday, May 22, 2017 7:18 PM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; daegeun.ahn@gmail.com; Andy Jiyong Oh; Junggho Kim (jhokim082@gmail.com); Wagner, David (Vienna)
Cc: McCoppin, Michael; Ward, William; Wunder, George; Kalathiveetil, Dawnmathews; Curtis, David
Subject: APR1400 Design Certification Application RAI 548-8822 [9.5.2 - Communications Systems]
Attachments: APR1400 DC RAI 548 ICE 8822.pdf

KHNP,

The attachment contains the subject request for additional information (RAI). This RAI was sent to you in draft form. Your licensing review schedule assumes technically correct and complete responses within 30 days of receipt of RAIs. However, KHNP requests, and we grant, the following RAI question response times. We may adjust the schedule accordingly.

09.05.02-6 : 30 days

09.05.02-7 : 45 days

Please submit your RAI response to the NRC Document Control Desk.

Thank you,

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Subject: APR1400 Design Certification Application RAI 548-8822 [9.5.2 - Communications Systems]
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REQUEST FOR ADDITIONAL INFORMATION 548-8822

Issue Date: 05/22/2017
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 09.05.02 - Communications Systems
Application Section:

QUESTIONS

09.05.02-6

10 CFR Part 50, Appendix A, GDC 2, states, in part, “Structures, systems and components important to safety are designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunamis, and seiches without loss of capability to perform their safety functions.” GDC 3, states, “Structures, systems and components important to safety to be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions. Noncombustible and heat resistant materials shall be used wherever practical throughout the unit, particularly in locations such as the containment and control room.” GDC 4, states, “Structures, systems and components important to safety to accommodate the effects of and to be compatible with the environmental conditions associate with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant-accidents.”

When the staff reviewed the applicant’s human reliability analysis, the staff identified risk important human actions that must be performed by an operator outside of the control room. This assumes the availability of communication systems. In RAI 491-8613, Question 09.05.02-04, the staff asked the applicant to justify why none of the communication system SSCs are classified as a risk-significant. The applicant's response (ML16222A952) stated that the risk significance of the communication systems would be reviewed at the next Reliability Assurance Program (RAP) expert panel meeting. The applicant’s response also stated that the communication system will be added in DCD Tier 2, Table 17.1-1 (Risk-significant Within-Scope RAP SSCs) if it is identified as a risk-significant SSC. In a subsequent phone call with the applicant, staff was informed that the RAP panel would be conducted in April 2017. RAI 491-8613, Question 09.05.02-04, has been closed as unresolved.

Clarify whether the Reliability Assurance Program (RAP) expert panel meeting has been conducted. Based on the panel, have the communication systems been identified as risk-significant SSCs. If yes, then the communication systems need to comply with the requirements of 10 CFR Part 50, Appendix A, GDC1, GDC 2, GDC 3, and GDC 4 and the applicant needs to describe how the communication systems comply with the requirements of 10 CFR Part 50, Appendix A, GDC 2, GDC 3, and GDC 4. Update the FSAR documents accordingly.

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09.05.02-7

10 CFR 52.47, requires that information submitted for a design certification must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. 10 CFR 52.47(b)(1) requires that the application must contain proposed inspections, tests, analyses, and acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a facility that incorporates the design certification has been constructed and will be operated in conformity with the design certification, the provisions of the Act, and the Commission's rules and regulations.

10 CFR 52.47(b)(1) compels an applicant to identify applicable COL items and articulate why those items are sufficient to meet the requirements. No applicable COL items were identified by the applicant. More detail is required within the communication systems ITAAC and acceptance criteria descriptions in Table 2.6.9-1 for the staff to ensure compliance. In RAI 491-8613, Question 09.05.02-05, the staff informed the applicant that the procedures to ensure that each communication subsystem is capable of performing its intended function must be supplemented to address this concern. The applicant's response (ML16211A158) stated that the COL item for the initial test program of the plant and offsite communication system is addressed in DCD Tier 2, Subsection 14.2.13 as COL 14.2(11). The test procedures for security communication are provided in DCD Tier 2, Subsection 14.2.12.1.146 per the response of RAI 197-8176 Question No. 14.03.12-7 (MKD/NW-15-0252L). COL 14.2(11) will be revised that "The COL applicant is to prepare the site specific preoperational and startup test specification and test procedure and/or guideline for plant and offsite communication system."

The applicant's proposed revision would defer the preoperational and initial startup tests and Communication Systems ITAAC that are described in Tier 1, Section 2.6.9, ITAAC Table 2.6.9.1 to the COL applicant. The communication systems included in the APR1400 standard design DC is not site-specific. In order for the staff to make a regulatory finding for the reasonable assurance that the communication systems are available as needed must therefore be based on sufficient information provided on docket of the APR-1400 and cannot be based on information that will be provided in the future or be based on a COL information item which defers information to a COL applicant. RAI 491-8613, Question 09.05.02-05, has been closed as unresolved.

Staff requests the applicant to:

- (1) Provide a detailed description of the applicant's Initial Test Program (ITP) in either Section 14.2 or 14.3 for all the communication subsystems and not just the ones needed for security communications. This should include individual pre-operational tests and initial startup test specifications for all communication subsystems which are described in Tier 1, Section 2.6.9 and Communication System ITAAC identified in Table 2.6.9.1.
- (2) Explain the backup/secondary power system for powering both onsite and offsite communication systems and also explain the tests conducted to ensure that the communication systems are able to perform their intended functions once normal power to the systems is lost and they are powered by the backup or secondary power system. This cannot be deferred to the COL applicant as stated by COL item 9.5(11). The applicant also needs to describe how EMI/RFI from the wireless communication system or any other

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communication system does not negatively impact safety-related I&C systems are not negatively affected in their preoperational testing procedure.

- (3) Provide more detailed ITAAC items addressing all of the communication subsystems to ensure that the subsystems are capable of performing their functions when called upon to do so. Provide detail of individual inspection, tests and analyses for each communication subsystem for the 3 Communication Systems ITAAC identified in Tier 1, Table 2.6.9.1. Provide acceptance criteria for each communication subsystem.
- (4) There is inconsistency regarding COL Item 14.2(11) in the response provided by the applicant in RAI 491-8613, Question 09.05.02-05 versus the response for RAI 197-8176, Question No. 14.03.12-7. One response states that the COL Item will be deleted while the other response states that the COL Item will be revised. Resolve this inconsistency.
- (5) The applicant's response to RAI 491-8613, Question 09.05.02-05, stated that the "communication system configuration" is described in subsection 2.6.9.1 of DCD Tier1. Subsection 2.6.9.1 only discusses what communication subsystems there are and the overall locations of communications systems. Define the phrase "communication system configuration" or remove it from subsection 2.6.9.1 and Table 2.6.9-1. Update all FSAR documents accordingly.